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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,600	09/23/2005	Norbert Erhardt	66489-071-7	1969

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DYKEMA GOSSETT PLLC
FRANKLIN SQUARE, THIRD FLOOR WEST
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER

MIDKIFF, ANASTASIA

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/550,600	Applicant(s) ERHARDT ET AL.	
	Examiner Anastasia Midkiff	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>23 Sept 2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "53" (see Figures 5a-5c).

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the camera connecting means, and adjustment means in the region of said connecting means for displacing camera, of Claims 27 and 34, and the cone beam *used for reconstruction* of Claim 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. (Examiner notes that Applicant admits these features are not present in the Figures in Lines 27-28 of Page 10 of the specification.)

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 25, 26, 30, and 34-36 are objected to because of the following informalities:

With respect to Claim 25, Line 2 recites, "the cone beam technology" wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --a--.

With respect to Claim 26, Lines 3-4 recite, "the center of rotation" wherein there is insufficient antecedent basis for this limitation in the claim.

With respect to Claim 30, Line 2 recites, "the X-ray fan beam" wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --a--.

With respect to Claim 34, Line 2 recites, "the region" wherein there is insufficient antecedent basis for this limitation in the claim. Examiner suggests replacing "the" with --a--.

Claims 35 and 36 are objected to based on their dependency upon Claim 34.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22-30 and 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to Claim 22, Line 11 recites, "can be adjusted," and Line 12 recites, "can be moved" wherein the phrase "can be" renders the claim indefinite, insofar as it is unclear whether the limitations following "can be" are or are not part of the claimed invention.

With respect to Claim 24, Lines 3-4 recite, "can be imaged" wherein the phrase "can be" renders the claim indefinite, insofar as it is unclear whether the limitations following "can be" are or are not part of the claimed invention.

With respect to Claim 26, Line 3 recites, "can be adjusted" wherein the phrase "can be" renders the claim indefinite, insofar as it is unclear whether the limitations following "can be" are or are not part of the claimed invention.

With respect to Claim 29, Line 5 recites, "can be moved" wherein the phrase "can be" renders the claim indefinite, insofar as it is unclear whether the limitations following "can be" are or are not part of the claimed invention.

With respect to Claim 34, Line 4 recites, "can be variably displaced" wherein the phrase "can be" renders the claim indefinite, insofar as it is unclear whether the limitations following "can be" are or are not part of the claimed invention.

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Claims 23, 25, 27, 28, 30, 35, and 36 are rejected based on their dependency upon Claims 22 and 34.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 22, 24, and 27-36 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 22, 23, 27, 30-36, and 38-40 of copending Application No. 10/550,304 (hereinafter '304). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

Claims 22, 24, and 31 are anticipated by Claims 22, 23, and 35 of '304. The present application refers to a panoramic tomographic first image and a 3D image of a

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subvolume computed from several 2D images from different directions, wherein a portion of the panoramic tomographic image can be imaged within the 3D image. The '304 application refers to first and second tomographic images, wherein the first depth of focus profile is different and smaller than the first, as is the case between a panoramic tomographic image and a subvolume tomographic 3D image. As such, these claims are equivalent and coextensive in scope.

The remainder of the dependent Claims directly correspond to each other as follows:

- Claim 27 corresponds to Claim 36 of '304
- Claims 28-30 correspond to Claims 38-40 of '304
- Claim 32 corresponds to Claim 27 of '304
- Claims 33-35 correspond to Claims 30-32 of '304, and
- Claim 36 corresponds to Claims 33 and 34 of '304.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22-24, 26, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent to Pfeiffer (USP# 6,049,584).

With respect to Claims 22-24 and 31, as they are best understood, Pfeiffer teaches an x-ray system having an x-ray sensitive camera (Abstract, Line 4) comprising:

- a first image detector (CCD, Figure 6) for the creation of a first panoramic tomographic image (Column 3 Lines 4-6, and Column 6 Lines 5-6);
- a second image detector in the form of a face sensor (S'1, S'2, Figure 6) disposed alongside first image detector in a common casing (Figures 3-6) for the creation of a 2D plane image (Column 3 Lines 58-62, and Column 6 Lines 24-35);
- means (9, 10) provided for the creation of 3D images of a subvolume of the mandibular arch, which means creates several 2D images from different directions (Column 3 Lines 58-62, and Column 6 Lines 24-35) and compute a 3D image therefrom, allowing a portion of the panoramic image to be imaged (Abstract and Column 1 Lines 7-11);
- wherein adjustment means (Column 4, Lines 20-23 and 29-32) are provided for moving, as desired, said second image detector into the optical path of an x-ray emitter for the creation of the respective x-ray image (Column 4, Lines 20-23 and 29-32);

With respect to Claim 26, Pfeiffer et al. further teach adjustment means (1) by means of which said camera and an x-ray emitter can be adjusted such that the center of rotation lies in the subvolume to be imaged (Figures 1 and 10-12).

With respect to Claim 30, Pfeiffer et al. further teach said camera is mounted for eccentric displacement (Column 4, Lines 24-35) and, in a first position, said image detector (CCD) is positioned in the x-ray beam for the creation of a panoramic tomographic image (Column 3 Lines 4-6, and Column 6 Lines 5-6), and, in a second position, said image detector (S'1, S'2) is positioned in the x-ray beam for the creation of a 3D image (Abstract and Column 1 Lines 7-11).

Claims 22-24, 26, 27, and 30-36, as they are best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent to Zeller et al. (USP# 6,055,292).

With respect to Claims 22-24 and 31, Zeller et al. teach an x-ray system (Abstract) having an x-ray sensitive camera (4) comprising:

- a first image detector (18) for the creation of a first panoramic tomographic image (Column 2, Lines 43-46);
- a second image detector (18') in the form of a face sensor (Figure 3) disposed alongside first image detector in a common casing (Figure 3) for the creation of a 2D plane image (Column 2, Lines 43-46);
- means provided for the creation of 3D images of a subvolume of the mandibular arch (Column 5, Lines 1-2), which means creates several 2D images from different directions (Column 5, Lines 3-6) and compute a 3D image therefrom, allowing a portion of the panoramic image to be imaged (Column 5, Lines 6-15);

- wherein adjustment means (9) are provided for moving, as desired, said second image detector (18') into the optical path of an x-ray emitter (3, Figure 2) for the creation of the respective x-ray image (Column 2 Lines 43-46, and Column 5 Lines 23-41);

With respect to Claim 26, Zeller et al. further teach adjustment means (1) by means of which said camera and an x-ray emitter can be adjusted such that the center of rotation lies in the subvolume to be imaged (Figures 2 and 7).

With respect to Claim 27, Zeller et al. further teach that said adjustment means (9) are disposed in a said casing (40) of said camera (Figures 1, 5, and 8).

With respect to Claim 30, Zeller et al. further teach said camera is mounted for eccentric displacement (Figures 2 and 7) and, in a first position, said image detector (18) is positioned in the x-ray beam for the creation of a panoramic tomographic image (Column 2, Lines 43-46), and, in a second position, said image detector (18') is positioned in the x-ray beam for the creation of a 3D image (Column 5, Lines 1-15).

With respect to Claim 32, Zeller et al. further teach said second image detector (18') is disposed alongside said first image detector (18), on a rear side of said first detector (Figure 5).

With respect to Claim 33, Zeller et al. further teach that said adjustment means (9) and the two image detectors (18, 18') are disposed in a common casing (40) with said camera (Figures 1, 5, and 8).

With respect to Claim 34, Zeller et al. further teach that said adjustment means (9) are provided on said casing (40) of said camera (4) and in a region of connecting

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means (8, 2, Figures 1 and 7) for the attachment of said camera (4) to a support (2), and said camera can be variably displaced, as an entity, relatively to said connecting means (Column 3 Lines 7-11, and Figure 2).

With respect to Claims 35 and 36, Zeller et al. further teach that said camera (4) has a radiolucent zone, disposed alongside said first image detector and said second image detector, where x-rays enter said camera (Column 2, Lines 55-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeller et al., as for Claim 22 above, and in view of U.S. patent to Yavus et al. (USP# 6,292,530).

With respect to Claim 25, Zeller et al. teach most of the elements of the claimed invention, including means for the creation of 3D images (Column 5, Lines 1-2), but do not specifically teach using cone beam technology with associated reconstruction algorithms.

Yavus et al. teach an x-ray diagnostic apparatus wherein 3D images are created from a number of 2D projections using cone beam reconstruction algorithms (Abstract), to obtain high resolution images in areas difficult to image with true cone beams using a more inexpensive apparatus (Column 1 Lines 50-60).

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It would have been obvious to one of ordinary skill in the art at the time of the invention to use the cone beam technology reconstruction algorithm of Yavus et al. in the apparatus of Zeller et al. to obtain high resolution images of areas that are difficult to scan with CT cone beams, and providing an inexpensive apparatus for same, as taught by Yavus et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent to Nishikawa et al. (USP# 5,058,147) regarding positioning mechanisms for teleradiographic images, but without another image detector and the required alignment of same with respect to the beam path.

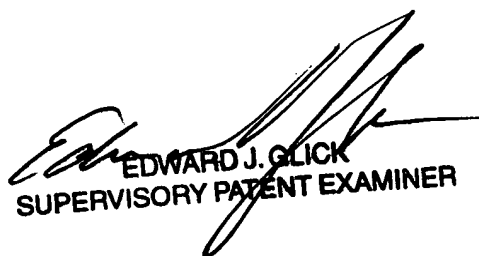
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anastasia Midkiff whose telephone number is 571-272-5053. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ASM
9/28/06



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER

